PACSystems™ VersaMax

15-BIT, 15-CHANNEL ANALOG CURRENT INPUT MODULE (IC200ALG264)

Warning Notes as Used in this Publication

Warning

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.
In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

Notes: Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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Product Description

Analog Input Module IC200ALG264 provides an interface to 15 current inputs.
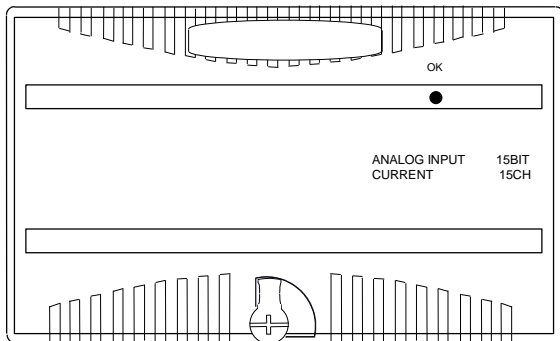
The module receives power from the backplane power supply. No external power source is required for module operation. Power for the user's transceivers must be supplied from an external source.

Module features include:

- Fifteen single-ended input channels, one group
- Jumper selection of 4-20mA or 0-20mA operating range
- Fifteen bit converter resolution
- Software-configurable selection of default/hold last state operation

Host Interface

The module provides 15 words of analog input data.

Diagnostics

The module reports a Loss of Internal Power fault for field-side circuits. The module reports an Open Wire fault for each channel, when in 4-20mA mode.

LED Indicators

The green OK LED is on when backplane power is present, internally generated field power is functioning properly, the module has been configured, and the module has been recognized on the backplane.

Configuration Parameters

A jumper on the carrier terminals can be used to configure 4-20mA or 0-20mA input ranges. With no jumper installed, the module accepts 4-20mA input signals. With a jumper installed, the module accepts 0-20mA input signals.

The analog inputs are software-configurable to either default or hold last state upon a loss of module.

Preinstallation Check

Carefully inspect all shipping containers for damage. If any equipment is damaged, notify the delivery service immediately. Save the damaged shipping container for inspection by the delivery service. After unpacking the equipment, record all serial numbers. Save the shipping containers and packing material in case it is necessary to transport or ship any part of the system.

Module Characteristics	
Channels	15 single ended, one group
Module ID	FFFFB50F (when cfg for 4-20mA range) FFFFB40F (when cfg for 0-20mA range)
Isolation: User input to logic (optical) and to frame ground Group to group Channel to channel	250VAC continuous; 1500VAC for 1 minute Not applicable None
LED indicators	OK LED indicates successful power-up and configuration
Thermal derating	None
Backplane current consumption	5V output: 100mA maximum
External power supply	None
Configuration parameters	Range select (terminal jumpers)
Diagnostics	Loss of Internal Power, Open wire detection of 4-20mA signals only
Input Characteristics	
Input current	4 to 20mA (default: no terminal jumper installed) 0 to 20mA (with terminal jumper installed)
Input Impedance	100 Ohms

Accuracy at:
        25 degrees C *
 	
        0 to 60 degrees C
	+/-0.3% typical of full scale,
	+/-0.5% maximum of full scale
	+/-1% maximum of full scale

Resolution	15 bits $0.5\mu A$ = 1 counts (for 4-20mA range) $0.625\mu A$ = 1 counts (for 0-20mA range)
Filter response (3dB Corner Freq)	24 Hz +/-20%
Update rate	7.5ms

*   *In the presence of severe RF interference, (IEC 1000-4-3, 10V/m), accuracy may be degraded to +/-2%.*

Product Version Information

Revision	Date	Description
IC200ALG264L	Nov 2019	Following Emerson's acquisition of this product, changes have been made to apply appropriate branding and registration of the product with required certification agencies. No changes to material, process, form, fit or functionality.
IC200ALG264K	Mar 2017	EU RoHS compliant module per directive 2011/65/EU dated 8-June-2011. No changes to features, performance or compatibility.
IC200ALG264J	Jan 2012	Label change. No changes to features, performance or compatibility.
IC200ALG264H	Mar 2011	Label change. No changes to features, performance or compatibility.
IC200ALG264G	Aug 2009	Changed manufacturing location. No changes to compatibility, functionality or performance.
IC200ALG264F BXIOAI15200F	Oct 2008	Updated Power Supply OK signal circuitry.
IC200ALG264E BXIOAI15200E	Apr 2005	Improvement to latching mechanism
IC200ALG264D BXIOAI15200D	Oct 2004	Increased power handling capacity of inputs.
IC200ALG264C	Apr 2004	Changed to V0 plastic for module housing.

Revision	Date	Description
IC200ALG264B	Jan 2004	ATEX approval for Group 2 Category 3 applications.

Field Wiring Terminals

Terminal assignments for the module are shown below.

| Number	Connection	Number	Connection
A1	I1	B1	No connection
A2	I2	B2	No connection
A3	I3	B3	No connection
A4	I4	B4	No connection
A5	I5	B5	No connection
A6	I6	B6	No connection
A7	I7	B7	No connection
A8	I8	B8	No connection
A9	I9	B9	No connection
A10	I10	B10	No connection
A11	I11	B11	No connection
A12	I12	B12	No connection
A13	I13	B13	No connection
A14	I14	B14	No connection
A15	I15	B15	No connection
A16	Range JMPR	B16	No connection
A17	RTN	B17	No connection
A18	NC	B18	No connection

Wiring Connections for Carriers with Two Rows of Terminals

The diagram below shows wiring connections for this module when installed on a carrier with two rows of terminals.
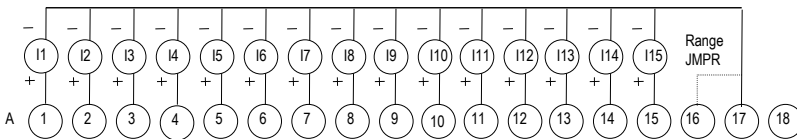
Wiring Connections for Carriers with Three Rows of Terminals

The next diagram shows wiring connections for this module when installed on a carrier with three rows of terminals.
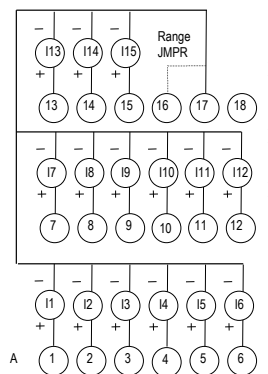
Jumper Selections

A jumper selects the current input range.

Jumper	Range
None	4-20mA
Installed from A16 to A17	0-20mA

Cable Shield Connections

Shielded twisted pair cable is recommended for the analog channel connections. If possible, the cable should be grounded at the source device. If that is not possible, the cable shield must be grounded at the I/O module. This can be done using an Auxiliary I/O Terminal.

If the module is installed on a Terminal-style I/O Carrier, shield connections can be made on an Auxiliary I/O Terminal that is attached to the I/O carrier.

If the module is installed on a Compact Terminal-style I/O Carrier, shield connections can be made on an Auxiliary I/O Terminal that is mounted near the I/O carrier.

If the module is installed on a Connector-style I/O Carrier, the cable shield can be connected directly to an Interposing Terminal. A shielded interposing cable (shielded cables are available separately) must be used between the Connector-style I/O Carrier and the Interposing Terminal.

An Auxiliary I/O Terminal Strip can also be added to the Interposing Terminal if additional shield connections are required.

Wiring Example
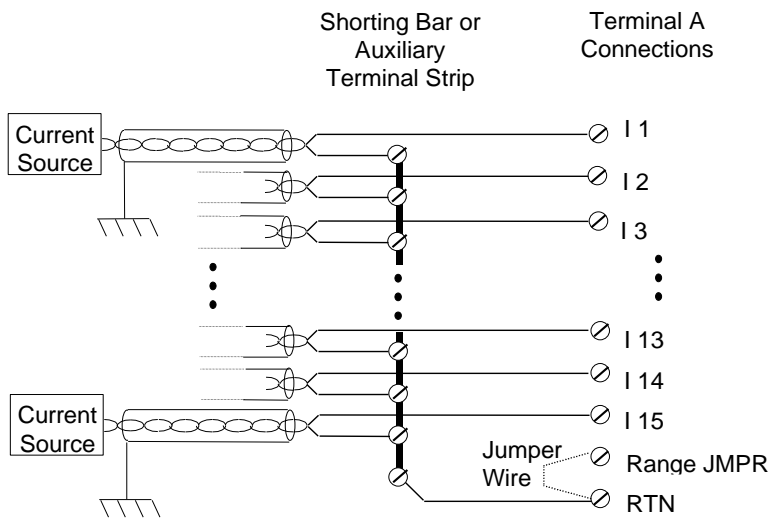
An optional Shorting Bar or Auxiliary I/O Terminal Strip can be used for wiring convenience, when multiple Return paths need to be wired together.

Operating Note

If hot insertion of a module is done improperly, the operation of other modules on the same backplane may be disrupted. See *Installing a Module on a Carrier* in the *VersaMax Modules Manual,* GFK-1504.

Scaling

The illustration below shows the relationship between the input current measured at the field terminals and the data that is output by the module.

Count and 4-20mA Input Current
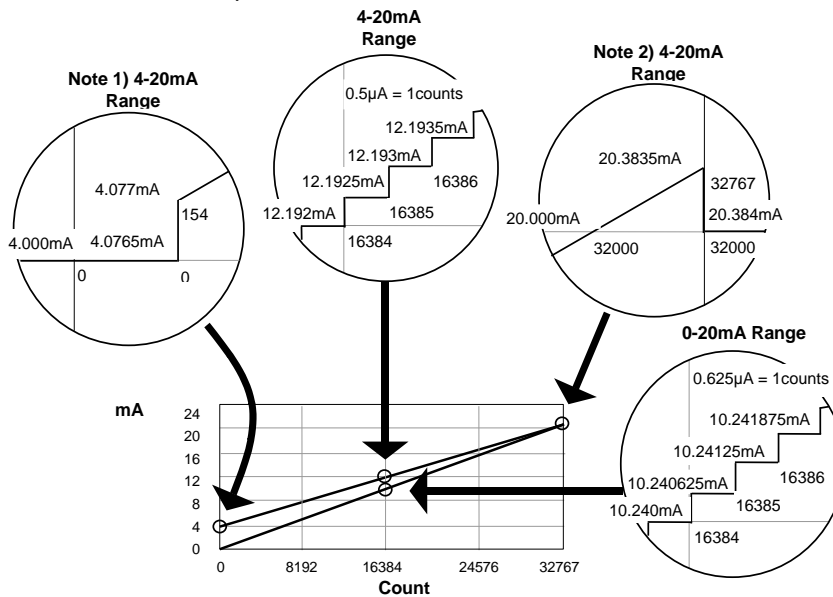
The following equations can be used to calculate count values:

4-20mA Range: Counts = (Current in mA - 4mA) x (32000 / 16mA)

0-20mA Range: Counts = (Current in mA) x (32000 / 20mA)

Note 1) *In 4-20mA mode, signal inputs below 4.077mA are converted to zero counts.*

Note 2) *In 4-20mA mode, signal inputs at 20.000mA or above 20.383mA are converted to 32000 counts.*

Installation in Hazardous Locations

- EQUIPMENT LABELED WITH REFERENCE TO CLASS I, GROUPS A, B, C & D, DIV. 2 HAZARDOUS LOCATIONS IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D OR NON-HAZARDOUS LOCATIONS ONLY

⚠ WARNING

- EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2;
- EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES; AND
- EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

Compatibility

This module is compatible with:

- PLC CPU firmware version 2.1 or later.
- VersaPro software version 2.0 or later.
- Ethernet NIU EBI001 firmware version 1.10 or later
- Genius NIU GBI001: firmware version 2.20 or later.
- Profibus NIU PBI001: firmware version 2.20 or later.
- DeviceNet NIU DBI001: not supported.

Technical Support & Contact Information:

Home link: http://www.Emerson.com/Industrial-Automation-Controls

Knowledge Base: https://www.emerson.com/Industrial-Automation-Controls/support

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